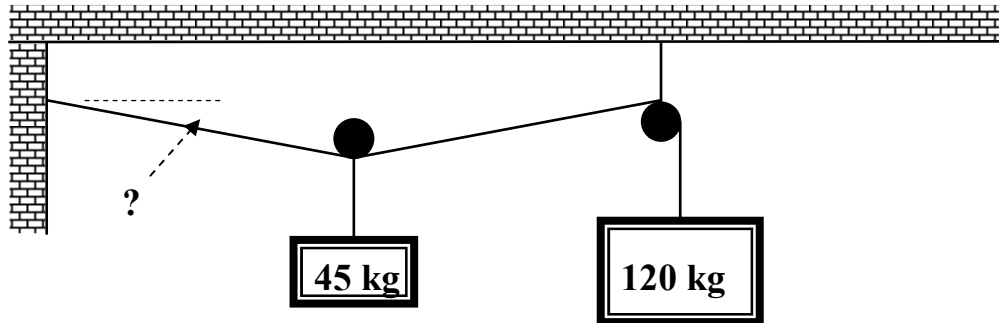
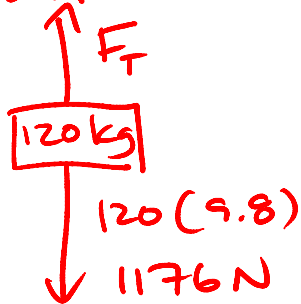


Example #6. Now we'll take the previous example and vary it slightly. In the case below, the system is in equilibrium. Determine the unknown angle as indicated.

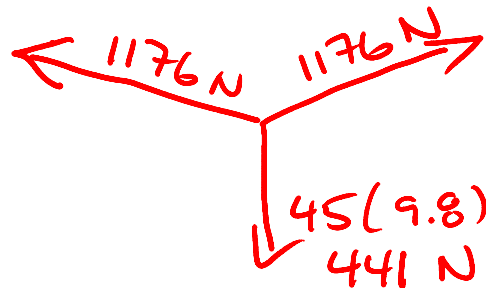


Start with 120 kg mass:

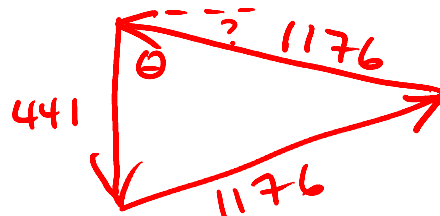


$$\Rightarrow F_T = 1176 \text{ N}$$

\Rightarrow this tension acts on either side of each pulley, so:



\rightarrow vector addition:



\rightarrow use cosine law:

$$1176^2 = 441^2 + 1176^2 - 2(441)(1176) \cos \theta$$

$$\theta = 79^\circ$$

$$\therefore \boxed{? = 11^\circ}$$